

**In The Claims**

1. A luminophore comprising a donor portion (D) in close association with an acceptor portion (A) sufficient for resonant energy transfer from D to A, wherein upon excitation by external electromagnetic radiation of a wavelength shorter than  $\lambda_1$ , said luminophore emits luminophore radiation of a wavelength longer than  $\lambda_1$ , which is in the range of about 400 to about 1200 nm with an emission lifetime  $\tau_1$  and a quantum yield  $Q_1$ ,

wherein when D is not in said close association with A, it absorbs radiation of a wavelength  $\lambda_2$  shorter than  $\lambda_1$  and thereafter emits radiation with a quantum yield  $Q_2$  less than about 0.2,

wherein when said donor portion D is in said close association with A and is excited by electromagnetic radiation of wavelength shorter than  $\lambda_1$ , it resonantly transfers energy to said acceptor portion A which then resonantly emits said luminophore radiation, and wherein said quantum yield  $Q_1$  is substantially greater than  $Q_2$ .

2. A luminophore of claim 1, which is a chemical compound wherein D is covalently linked to A.

3. A luminophore of claim 1, wherein each of D and A are bound to separate molecules which can interact in solution to form said close association.

4. A luminophore of claim 1, wherein said luminophore radiation has a wavelength of 550 to 1000 nm.
5. A luminophore of claim 4, wherein the emission lifetime  $\tau_1$  is 25 ns to 100  $\mu$ s.
6. A luminophore of claim 5, wherein said luminophore emission has a quantum yield  $Q_1$  of about 1.
7. A luminophore of claim 6, wherein at least one of D and A comprises a functional group by which it can be covalently bonded to another compound.
8. A compound of the formula  
$$D-L-A$$
wherein D is a donor metal ligand complex having a quantum yield less than about 0.2 for emissions in the wavelength range greater than about 400 nm;  
A is an acceptor of energy resonantly transferred from D which is then emitted in the wavelength range of about 400 to about 1200 nm; and  
L is a spacer of a length effective for resonant energy transfer between D and A.
9. A compound of claim 2, further comprising a functional group by which it can be covalently bonded to another compound.

10. In a chemical compound marked with a covalently bonded detectable label, the improvement wherein the label is a compound of claim 9.
11. A method of labeling a chemical compound comprising covalently bonding thereto a compound of claim 9.
12. In a method of identifying a chemical species in a mixture of compounds comprising detecting radiation emitted by said chemical species, the improvement wherein said chemical species is a compound of claim 10.
13. A method of providing a probe which emits luminophore radiation of a wavelength  $\lambda_1$  in the range of about 400 nm to about 1200 nm with a high quantum yield  $Q_1$  and a half-life greater than about 25 ns, comprising placing a donor molecule D, which per se emits radiation of a wavelength less than  $\lambda_1$  with a quantum yield substantially lower than  $Q_1$ , in close association with an acceptor molecule A sufficient for resonant energy transfer from D to A, as a result of which D resonantly transfers energy to A and A emits said luminophore radiation.
14. A compound of claim 8, wherein D is a transition metal ligand complex.
15. A compound of claim 14, wherein said transition metal is Re, Ru, Os or Ir.

